

BIOL&160

Syllabus

General Biology

Fall 2009

Instructor	Mark Ainsworth, Ph.D.
Office Hours (SAM310)	MWF 11 – Noon; MF 2 – 3:00 PM or by appointment
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Web Site	www.seattlecentral.edu/faculty/mainsworth
Lecture: MWF	SAM 105, 10:00 – 10:50 AM
Lab: T Th	SAM 305, 10:00 – 11:50 AM
Textbook	Biology: Concepts and Connections 6th ed. Campbell <i>et al.</i> (ISBN 0-321-48984-5)

Expectations:

- Eat, sleep, and take care of other basic life necessities before coming to class
- Time is precious, and there is much to learn; therefore we must maximize our time together so be prepared to work hard and be fully engaged for the entire time period
- Do not arrive late for class: show respect for yourself, your fellow students, and your instructor by cultivating a love for punctuality
- Take personal responsibility for your education! Ask questions when you do not understand something; come to office hours or make an appointment to speak with me
- Complete assignments on time – *missed labs cannot be rescheduled*
- SILENCE ALL ELECTRONIC DEVICES BEFORE COMING TO CLASS
- LEARN

NOTE: Students with documented disabilities who need course accommodations, have emergency medical information or require special arrangements for building evacuation should contact the instructor within the first two weeks of class.

Welcome to the Study of Life – Biology:

Biology is at the pinnacle of the Pyramid of Sciences. It is based on a foundation of *mathematics, physics, and chemistry*. We will start with the very building blocks of matter – atoms – and work our way up through an understanding of biomolecules, cells, tissues, organisms, populations, the origins of Life, and how organisms interact with each other and their environment.

Course Description:

This course is an introduction to the basic concepts in modern biology. It is a survey course that will cover the nature of life from the atomic level to the interaction of biotic and abiotic components of ecosystems. It will introduce the principle forces that organize living matter and drive Life. This course will then examine the fundamental unit of life – the cell. Next the nature of DNA and the “Dogma of Molecular Biology” will be covered.

Finally, after considering genetics and evolution, a survey of Life will commence with single-celled prokaryotic organisms and finish with the multicellular animals.

How to maximize the return on this course:

- Attend all classes and labs. Be punctual!
- Get to know your classmates: exchange e-mail and phone numbers with at least two people in this class, with the understanding that if you miss a lecture or lab you will help each other out with notes, etc.
- SCHEDULE at least 1-2 hours of study time per hour of lecture and lab i.e 7 – 14 hours a week outside of class! We will be covering a tremendous amount of material in this course. If you do not commit time to it, you will be much poorer for it.
- Read text and assignments before lecture and lab. Review text, assignments, and notes after lab and lecture.
- Form study groups and discuss the course topics. If you think you know something, see if you can explain it to your fellow students. Then see if you can explain it to someone that is not in the class.
- Material that needs to be memorized is best committed to memory over time. Keep it by your bedside, and look at it before you sleep. Look at it when you get up in the morning – every day.
- Ask for help! Come to office hours or make an appointment if you are struggling with the material.
- Be enthusiastic about LEARNING! It makes things much easier. If you don't have that enthusiasm, find it, fake it, or lie to convince yourself that you do; eventually you will discover a genuine love of learning.

Grading:

EXPERIENCES: No exams will be given in this course – only Experiences. An Experience is an opportunity to apply the knowledge that you have accumulated in the course thus far to new situations and problems. They will not only probe to what extent you have absorbed the material, but also how your problem solving skills are developing.

There will be four Experiences in this course. The first three will focus on the material covered since the previous exam, but any material covered thus far in the course may be found on any exam. The fourth will be cumulative for the entire quarter. Experiences must be taken at the time they are given. Any change in dates will be announced in class. There are no make-ups except for extreme emergencies.

QUIZZES: On the weeks without experiences, quizzes will be given. Each is worth 10 points and will take place at the very beginning or at end of class. Missed quizzes cannot be made up. The material that quizzes will cover is cumulative as the quarter progresses.

LAB: Always read and be familiar with the day's activities before coming to lab. Pre-lab reports will be required for most labs. More details concerning lab expectations will be discussed on the first day of lab.

POINTS:

Experience 1, 2, 3 (100 points each)	300 pts
Final Experience	150 pts
Quizzes (1/week; lowest dropped)	90 pts
Lab assignments	<u>120 pts</u>
	660 pts

GRADING SCALE:

Percentage	Letter Grade	Grade Point
95 - 100%	A	4.0
90 – 94%	A-	3.5 - 3.9
80 – 89%	B- to B+	2.5 - 3.4
70 – 79%	C- to C+	1.5 - 2.4
60 – 69%	D- to D+	0.7 - 1.4

Tentative Schedule (SUBJECT TO CHANGE)

<i>Wk</i>	<i>Date</i>	<i>Lecture Topics</i>	<i>Theme</i>	<i>Lab Exercises</i>	<i>Readings / Notes</i>	
1	M					
	T	9/29	Introduction; Biology/Psychology of Learning	Sci	Introductory Lab	Ch.1
	W	9/30	Cellular Life	Cell		4.1 – 4.4; Ch. 2
	Th	10/1			Chemistry	QUIZ w1
	F	10/2	Molecules of Life	Cell		Ch. 3
2	M	10/5	Cell Anatomy	Cell		4.5 – 4.16, 4.17 – 4.23
	Tu	10/6			Microscope	
	W	10/7	Cell Functioning	Cell		Ch. 5
	Th	10/8			Cells	QUIZ w2
	F	10/9	Energy Cycle Cell Experiments	Cell Sci		4.14 – 4.16; 6.1-6.5; 7.1 – 7.5
3	M	10/12	Molecular Biology	DNA		10.1 – 10.5
	Tu	10/13			Diffusion and Osmosis	
	W	10/14	DNA to Proteins	DNA		10.6 – 10.16
	Th	10/15			Enzymes & Experimental Design	Quiz w3
	F	10/16	Controlling Gene Expression	DNA		Ch. 11
4	M	10/19	Cell Division: Mitosis	DNA		8.1 – 8.11
	Tu	10/20			cont.: Experimental Design	
	W	10/21	Cell Division: Meiosis	DNA		8.12 – 8.24
	Th	10/22			EXPERIENCE	Experience w4
	F	10/23	Genetics	DNA		Ch. 9
5	M	10/26	Molecular Experiments	Sci		
	Tu	10/27			DNA Dogma DNA Extraction	
	W	10/28	Evolution	Evo		13.1 – 13.10
	Th	10/29			Pop Beads Cell Division	QUIZ w5
	F	10/30	Mechanisms of Evolution	Evo		13.11 – 13.17 Ch. 14
6	M	11/2	Origins of Life	Evo		Ch. 15
	Tu	11/3			Patterns of Inheritance Antibiotic Resistance 1	
	W	11/4	Biogeology	Evo Life		
	Th	11/5			Dot Evolution Antibiotic Resistance 2	QUIZ w6
	F	11/6	Prokaryotic Diversity	Life		Ch. 16
7	M	11/9	Plant Biology	Life		Ch. 17
	Tu	11/10			Antibiotic Resistance 3 More Evolution	
	W	11/11	HOLIDAY (Veteran's Day)			
	Th	11/12			EXPERIENCE	Experience w7

	F	11/13	Plant Biology and Fungi	Life		Ch. 31
8	M	11/16	Invertebrates	Life		Ch. 18
	Tu	11/17			Plant Lab	
	W	11/18	Vertebrates	Life		Ch. 19
	Th	11/19			Plant Lab	QUIZ w8
	F	11/20	Animal Physiology	Life		
9	M	11/23	Form and Function	Life		Ch. 20
	Tu	11/24			The Rotten World Around Us	
	W	11/25	Animal Behavior	Life		Ch. 35 QUIZ w9
	Th	11/26	HOLIDAY (Thanksgiving)		HOLIDAY	
	F	11/27	HOLIDAY (Thanksgiving)			
10	M	11/30	Population Ecology	Eco		Ch. 36
	Tu	12/1			Animal Lab	
	W	12/2	Communities	Eco		37.1 – 37.13
	Th	12/3			Animal Lab	Experience w10
	F	12/4	Population Dynamics	Eco		
11	M	12/7	Resource Cycling	Eco		37.14 – 37.23
	Tu	12/8			EXPERIENCE	
	W	12/9	Experimental Ecology	Eco		
	Th	12/10			Ecology Lab	
	F	12/11	TBD	Eco		QUIZ w11
12	M	12/14	Review			
	Th	12/17	FINAL : 8 – 10 AM		FINAL EXPERIENCE	